

May 31, 2006



U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 14209

EXPIRATION DATE: April 30, 2008

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: ABB Power Technologies AB
Lulea, Sweden
(U.S. Agent: Power Technology Products Division,
USA ABB, Inc., Alamo, TN)
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of a non-DOT specification fully-wrapped carbon composite cylinder with seamless, non-load sharing plastic liner for the transportation in commerce of the materials authorized by this special permit. The cylinders are authorized for self-contained underwater breathing apparatus (SCUBA) or self-contained breathing apparatus (SCBA) use. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.302a(a)(1), 175.3 and 180.205, in that a non-DOT specification cylinder is not authorized, except as specified herein.

NOTE: This does not relieve the grantee of this special permit from securing and maintaining a valid approval for the foreign manufacture of cylinders from the Associate Administrator for Hazardous Materials Safety.

5. BASIS: This special permit is based on the application of ABB Power Technologies AB, dated June 27, 2005, and supplementary information, dated February 17, and March 28, 2006, submitted in accordance with § 107.105 and the public proceeding thereon.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Air, compressed	2.2	UN1002	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification fully-wrapped carbon composite cylinder with a plastic liner as shown on ABB Power Technology Products Drawings DE1701 347, DE17 00052 and DE1700 088, technical specifications and information detailed in ABB's application, on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). The cylinder must be designed, manufactured, tested and meet all the requirements of ISO 11119-3: 2002 (Fully Wrapped Fiber Reinforced Composite Gas Cylinders with Non-metallic and Non-load-sharing Metal Liners). Additionally, the cylinder must be in conformance with the following:

- (1) The design life of the cylinder must be equal to or greater than 48 years.
- (2) The resin type must meet all of the requirements and testing criteria for saltwater testing as described in ABB's application on file with OHMSPA.
- (3) The maximum water capacity of each cylinder is less than or equal to 7 liters.

(4) The maximum design test pressure of each cylinder is less than or equal to 450 bars (6526 psi).

b. REQUALIFICATION -

(1) Each cylinder must be given an annual visual inspection by a qualified person holding a valid DOT Requalification Identification Number (RIN) in accordance with either the ABB visual inspection procedure on file with OHMSPA or CGA Pamphlet C-6.2. Cylinders that do not pass the annual visual inspection must be rejected and returned to ABB. ABB must annually submit a report of all cylinders which fail the annual visual inspection to OHMSPA. The report must include the cylinder serial number and date of manufacture. The report must include a description of cuts, abrasions, and other damage detected during the visual inspection.

(2) Each cylinder must be requalified once every 5 years by a qualified person holding a valid DOT RIN using a hydraulic proof pressure test equal to 1.5 times the marked service pressure and visually inspected in accordance with either the ABB visual inspection procedure on file with OHMSPA or CGA Pamphlet C-6.2 "Guidelines for Visual Inspection and Re-qualification of Fiber Reinforced High Pressure Cylinders", except as specifically noted herein:

(i) Cylinders with fiber damage (cuts, abrasions, etc.) that exceeds Level 1 type damage as defined in CGA Pamphlet C-6.2 and meet the following depth and length criteria are considered to have Level 2 damage:

a. Depth - Damage that upon visual inspection is seen to penetrate the outer fiberglass layer but does not expose the carbon layer beneath, or that has a measured depth of greater than 0.005 inch and less than 0.045 inch for cylinders with an outside diameter greater than 7.5 inches or less than 0.035 inch for cylinders 7.5 inches or less in outside diameter;

b. Length - Damage that has a maximum allowable length of:

Region	Direction of fiber damage	Maximum length of damage
Cylinder sidewall and domes	Transverse to fiber direction (longitudinal direction)	20% of the straight sidewall section length
Cylinder sidewall and domes	In fiber direction (circumferential direction)	20% of the straight sidewall section length

(ii) Cylinders with damage that meet the Level 2 criteria must be rejected. Requalifiers must contact the cylinder manufacturer in the event that the damage cannot be clearly interpreted based on these criteria. Repair of rejected cylinders is authorized for Level 2 type damage. Repairs must be made in accordance with the ABB visual inspection procedure on file with OHMSPA or CGA Pamphlet C-6.2, prior to the hydrostatic pressure test. Repairs must be evaluated after the hydrostatic test.

(iii) Cylinders that have direct fiber damage that penetrates through the outer fiberglass layer and into the carbon layer, or that have a measured damage depth of greater than the Level 2 maximum are considered to have Level 3 type damage. Cylinders that have damage with depth meeting Level 2, but length exceeding the Level 2 maximum are considered to have Level 3 type damage. Cylinders with Level 3 type damage are not authorized to be repaired, and must be condemned.

(iv) A hydrostatic requalification may be repeated as provided in § 180.205(g); only two such tests are permitted. Pressurization prior to the official hydrostatic test for the purpose of a systems check may not exceed 85% of the minimum required test pressure.

(3) Persons who perform inspection and testing of cylinders subject to this special permit must comply with § 180.205(b) and with all the terms and conditions of this special permit.

(4) Requalification date (month/year) must be permanently marked on the cylinder as specified in paragraph 7.c.(1) below. The marking of the RIN symbol on the cylinder certifies compliance with all of the terms and conditions of this special permit.

c. MARKING -

(1) Each cylinder must be permanently marked (other than by stamping) in the composite overwrap on the sidewall. The marking must be easily visible and must be protected from external damage due to the environment and handling.

(2) The marking must contain the following:

(i) DOT special permit number (DOT SP-14209) followed by service pressure expressed in bar (psi).

(ii) A serial number and the manufacturer's identification number or a symbol as obtained from the Associate Administrator for Hazardous Materials Safety, located just below or immediately following the DOT marking above.

(iii) The DOT inspector's official mark must be placed near the serial number. The marking must contain date the (month and year) of the initial hydraulic proof pressure test for that cylinder.

(iv) If the cylinder is intended to be used as a self-contained underwater breathing apparatus (SCUBA), then the marking designation for SCUBA must be included.

(v) The size of the letters and numbers used must be at least 0.64 cm (1/4 inch) high if space permits.

(vi) The following are examples of an authorized format for marking:

DOT-SP 14209-300 bar(4350psi)
1234-MMI (or symbol)
II-MM/YY or

DOT-SP 14209-300 bar(4350psi)
1234-MMI (or symbol)
II-MM/YY -SCUBA.

(vii) Additional markings are permitted in the composite, provided the additional markings do not obscure the required marking and are not detrimental to the integrity of the cylinder.

(viii) Provisions for marking of the required requalification dates and RIN information must be made near the cylinder markings.

d. OPERATIONAL CONTROLS -

(1) Cylinders manufactured under this special permit are only authorized for SCUBA or SCBA use only.

(2) A cylinder made under this special permit is not authorized for use 15 years after the date of manufacture. After 15 years of service, the cylinder must be rendered incapable of holding pressure.

(3) Cylinders must be packaged in accordance with § 173.301(a)(9).

(4) A cylinder that has been subjected to fire may not be returned to service.

(5) ABB must carry out an in-service test and evaluation plan as follows:

(i) ABB will collect the sample cylinders from those manufactured during the first two years of production. Sampling and testing must be as summarized in the table below. Cylinders must be requalified in accordance with paragraph 7.b.(2) of this special permit. Each cylinder must then be given a hydrostatic burst test in accordance with the ISO 11119-3: 2002:

FROM PRODUCTION YEAR	SAMPLE GROUP NUMBER	YEARS IN SERVICE	MINIMUM SAMPLE SIZE PER DESIGN
1	1	5	15
2	2	5	15
1	3	10	15
2	4	10	15
1	5	12	15
2	6	12	15

(ii) ABB must submit a report of the inspection and test results from sample group number one to the OHMSPA upon completion. Reports of subsequent sample group testing must be submitted at the testing intervals specified above. Each report must include the cylinder serial number and date of manufacture. The report must include a description of cuts, abrasions, and other damage detected during visual examination. The report must include the failure mode, and burst pressure of the cylinder.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

- d. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.
- e. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.
- f. The cylinders described in this special permit are authorized only for normal transportation as an article of commerce i.e., the movement of hazardous materials packages from consignor to consignee.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor Vehicle, cargo aircraft, cargo vessel, rail freight.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft or cargo vessel used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety -- OHMSPA, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Robert A. McGuire
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: MMTOUGHIRY

5/31/2006

Company Name City / State	Application Date	Issue Date	Expiration Date
ABB Power Technologies AB Alamo, TN	Jun 27, 2005	May 31, 2006	Apr 30, 2008